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EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,827

Applicant(s)

SCHWARZ ET AL.

Examiner

Gordon J Stock

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The specification is objected to for the following: on line 12 of page 23, the phrase, "points 24a of the actual" should read --points 24a and 23a of the actual--. Appropriate correction is required. Also on line 25 of page 21, the phrase, "measurement points 23a," should read --measurement points 22a--. Appropriate correction is required. In addition, on lines 4, 5, and 13 of page 28, "3b, 12b, and 3c" should read --2b, 10b, and 2c--respectively. Appropriate corrections are required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The drawings and specification are objected to as failing to comply with 37 CFR 1.84(p)(5) because the drawings include the following reference sign(s) not mentioned in the description: **54** of Fig. 7; **107** of Fig. 9. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. **Claim 1** is objected to for the following: on line 7, the phrase, "the measurement surface," lacks antecedent basis. On line 8, "the surface" lacks antecedent basis. On lines 18-19, "the measurement sequence" and "the measurement results" lack antecedent basis. On line 28,

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“the spectral characteristic” lacks antecedent basis. On lines 31-32, “the path” lacks antecedent basis. Appropriate corrections are required.

5. **Claim 5** is objected to for the following: “the typical wavelength” and “the topology” lack antecedent basis. Correction is required. In addition, **Claim 5** is improperly dependent upon itself. Appropriate correction is required.

6. **Claim 6** is objected to for the following: “the standard light groups,” “the C light type standard,” “the D65 light type standard,” and “the A light type standard” lack antecedent basis. Appropriate corrections are required.

7. **Claim 7** is objected to for the following: “the aggregate”, “the spectral sensitivity,” “the sensitivity,” and “the human eye” lack antecedent basis. “Sensor” should read –photosensor--. Appropriate corrections are required.

8. **Claim 10** is objected to for the following: “wherein said illuminating means comprises” should read –wherein said illuminating means further comprises--. Appropriate correction is required.

9. **Claim 16** is objected to for the following: “the gradient” lacks antecedent basis. Appropriate correction is required.

10. **Claim 26** is objected to for the following: “the characteristic temperature” and “the purpose” lack antecedent basis. Appropriate corrections are required.

11. **Claim 27** is objected to for the following: “the progression,” “the image,” “the measured path,” and “the ideal path” lack antecedent basis. Appropriate corrections are required.

12. **Claim 28** is objected to for the following: “the predetermined measurement points” lacks antecedent basis. Appropriate correction is required.

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13. **Claim 29** is objected to for the following: "the relative movement" lacks antecedent basis. Appropriate correction is required.

14. **Claim 31** is objected to for the following: "the emitted light," "the measurement sequence," and "the measurement results" lack antecedent basis. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. **Claim 1, 6, 10, 13, 14, 18, 21, 26, 28, and 31** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the

present instance, **claim 1** recites the broad recitation “spectral characteristic,” and the claim also recites “preferably at least blue, green, and red spectral components” which is the narrower statement of the range/limitation; **claim 10** recites the broad recitation “a second light source or several light sources” and the claim also recites “preferably configured as light diodes, whereby preferably each of said light sources has differing spectral characteristic” which is the narrower statement of the range/limitation; **claim 13** recites the broad recitation “said light pattern”, and the claim also recites “preferably at least one light/dark edge” which is the narrower statement of the range/limitation; **claim 14** recites the broad recitation “at least one part thereof extends at least sectionally parallel”, and the claim also recites “preferably at least one section of said plurality of light/dark edges” which is the narrower statement of the range/limitation; **claim 18** recites the broad recitation “an angle selected from among a group of angles”, and the claim also recites “in particular, the angles of...eighty five degrees” which is the narrower statement of the range/limitation; **claim 18** also recites the broad recitation “said predetermined angles”, and the claim also recites “preferably differ between the different optical means” which is the narrower statement of the range/limitation; **claim 21** recites the broad recitation “at least two photosensitive elements”, and the claim also recites “preferably three or more” which is the narrower statement of the range/limitation; **claim 31** recites the broad recitation “the emitted light”, and the claim also recites “preferably blue, green, and red spectral components” which is the narrower statement of the range/limitation

- b. Regarding **claim 14**, the phrase "and the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "and the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).
- c. Regarding **claim 6**, the phrase "or other similar light type standards" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or other similar light type standards"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).
- c. The term "as close as possible" in **claim 26** is a relative term which renders the claim indefinite. The term "as close as possible" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "as close as possible" makes the distance of the one measuring temperature means to the light source and/or photosensor indefinite.
- d. The term "essentially" in **claim 26** is a relative term that renders the claim indefinite. The term "essentially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "essentially" makes the value of the term, "constant," indefinite.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. **Claims 1-5, 8, 11-17, 22, 28, and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)**.

As to **claim 1**, Jung discloses an apparatus for measuring optical characteristics of teeth comprising: a first optical means which is a source fiber optic, having at least one illuminating means, the light of which is directed at a predetermined angle to the surface, a second optical means which is a receiver fiber optic aligned at a predetermined angle to surface and which receives the light reflected from surface, whereby said second optical means comprises at least one photosensor, which emits an electrical measurement signal; a control and evaluation means provided for controlling the measurement sequence and for evaluating of the measurement results and which has at least one processor device and at least one memory means; an output display means; whereby a filter means is arranged in the path of radiation between said light source and said photosensors as to change the spectral characteristic of the incident light in such a way in accordance with filter properties that the spectral characteristic essentially approaches that of a predetermined spectral distribution; and whereby evaluation means evaluates said reflected light and derives at least one parameter of the surface (Figs. 1, 2, and 9; col. 3, lines 50-67; cols.7-12; col. 17-19).

As for the light emitted from said illuminating means, Jung teaches tristimulus color measurements (col. 2, lines 13-30). It is well-known that white light comprises red, green, and blue spectral components. Therefore, it would be obvious to one skilled in the art at the time the

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invention was made that the halogen light comprises the spectral characteristics of red, blue, and green, for white light comprises red, blue, and green light.

Jung discloses the illuminating means as a halogen source (col. 8, lines 20-25). Hochman in an imaging apparatus shows that a diode is a functional equivalent of a halogen lamp.

Therefore, because these two were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a diode for a halogen lamp.

As to **claim 2**, Jung in view of Hochman disclose everything as above (see **claim 1**). In addition, Jung discloses the parameter is gloss (col. 3, lines 60-65).

As to **claim 3**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses two or more characteristic parameters (col. 3, lines 60-65).

As to **claim 4**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses the parameter is selected among gloss and color (col. 3, lines 60-65).

As to **claim 5**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses a representative measurement of an intensity of the texture of the surface if rough or smooth (col. 10, lines 45-67).

As to **claim 8**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses filter means comprising at least one or several filters having predetermined spectral properties (Fig. 3, Fig. 9).

As to **claim 11**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses evaluation means evaluates measurement signal using a program stored (col. 11, lines 30-40).

As to **claim 12**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses the second optical means comprises a plurality of photosensors arranged adjacent to one another (Fig. 3, Fig. 9).

As to **claim 13**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses the light of first optical means exhibits an elliptical pattern of at least one light edge (col. 16, lines 5-15).

As to **claim 14**, Jung in view of Hochman discloses everything as above (see **claim 1**). Jung discloses that a color gradient filter comprising a series of parallel light and dark edges may be used (Fig. 11; col. 24, lines 5-30).

As to **claim 15**, Jung in view of Hochman discloses everything as above (see **claim 12**). In addition, Jung discloses that a color gradient filter may be used (Fig. 11; col. 24, lines 5-30). Therefore, a gradient of signals will be derived. It would be obvious to one skilled in the art at the time the invention was made that the evaluation means will derive at least one gradient of the measurement signal from the difference between the measurement signal of a photodiode and a neighboring photodiode, for the color gradient filter produces a signal gradient of the light to the linear array of sensors.

As to **claim 16**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses that a color gradient filter may be used (Fig. 11; col. 24, lines 5-30). And that averaging occurs (col. 8, lines 60-65).

As to **claim 17**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses an intra-oral camera (Fig. 24). Examiner takes Official Notice of at least one light source is well known in the art as a component of an intra-oral camera. It would

be obvious to one skilled in the art to have the intra-oral camera comprise at least one light source in order to provide illumination. Jung discloses the light source, third optical means, of the intra-oral camera may be the same as of the reflectometer (Fig. 34). Therefore, the light sources for both systems are functionally equivalent. Because the light source of the reflectometer system and the intra-oral camera system were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious that the light source of the intra-oral camera has the same predetermined spectral characteristic as the reflectometer's light source.

As for the predetermined angle for imaging, this would be an optimized value. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to the camera at a predetermined angle for imaging, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

As for **claim 22**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses the photosensor may comprise at least two photosensitive elements, the electrical output signals of which can be ascertained individually and which differ in their spectral characteristics (Fig. 12, col. 24, lines 35-55).

As for **claim 28**, Jung in view of Hochman discloses everything as above (see **claim 1**). In addition, Jung discloses device moveable relative to surface at an essentially constant spacing therefrom and a distance measuring means is provided which ascertains movement and memory means into which optical parameters measured along predetermined measurement points are stored (Figs. 1, 2, and 9; col. 3, lines 50-67; cols.7-12; col. 17-19).

As for **claim 31**, Jung discloses a method comprising: providing a first optical means having a first light source at a predetermined angle onto a surface; providing a second optical means comprising at least one photosensor directed at a second predetermined angle, whereby said at least one photosensor emits an electrical measurement signal characteristic of received light; providing a control and evaluation means for controlling the measurement sequence and evaluating the measurement results and which has at least one processor device and which stores said measurement signal in a memory means; providing an output display device; evaluating light and deriving at least one variable parameter (Figs. 1, 2, and 9; col. 3, lines 50-67; cols. 7-12; col. 17-19).

As for the light emitted with preferably blue, green, and red spectral characteristics, Jung teaches tristimulus color measurements (col. 2, lines 13-30). It is well known that white light comprises red, green, and blue spectral components. Therefore, it would be obvious to one skilled in the art at the time the invention was made that the halogen light comprises the spectral characteristics of red, blue, and green, for white light comprises red, blue, and green light.

Jung discloses the light source as a halogen source (col. 8, lines 20-25). Hochman in an imaging apparatus shows that a diode is a functional equivalent of a halogen lamp. Therefore, because these two were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a diode for a halogen lamp.

19. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** further in view of **Suga (4,150,898)**.

Jung in view of Hochman discloses everything as above (see **claim 5**). However, they are silent concerning the standard distribution being from a particular light type standard. Suga

teaches in a colorimeter that halogen or tungsten lamps are employed for obtaining C light measurements. Therefore, it would be obvious to one skilled in the art at the time the invention was made that the diode, a functional equivalent of the halogen source, would also be a C light standard, for halogen lamps are employed for obtaining C light measurements.

20. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Keithley et al. (6,407,830)**.

As to **claim 7**, Jung in view of Hochman discloses everything as above (see **claim 1**). Jung discloses the use of tristimulus systems for color determination and is silent concerning the sensitivity of the sensor in relation to the human vision. Keithley in a sensor assembly teaches that the color accuracy of the image will be only as good as the spectral band match between the spectral sensitivity of the sensor used to record the image and the spectral sensitivity of human vision. Therefore, it would be obvious to one skilled in the art at the time the invention was made to have Jung's system have the spectral measurement characteristic be the aggregate of the spectral characteristic of the light emitted onto the measurement surface and the spectral sensitivity of the sensor in proportion to an aggregate of a spectral distribution of a light type standard and the sensitivity of the human eye, for the color accuracy can only be good as the spectral band match between the spectral sensitivity of the sensor and the spectral sensitivity of the human vision.

21. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Sweatt (6,262,845)**.

As to **claim 9**, Jung in view of Hochman discloses everything as above (see **claim 1**). However, they are silent concerning a scatter disk and aperture arrangement. Sweatt in an illumination system discloses using a scatter plate and aperture arrangement for uniform illumination (col. 7, lines 55-67; col. 8, lines 1-10). It would be obvious to one skilled in the art at the time the invention was made to have a scatter plate and aperture arrangement in order to provide uniform illumination.

22. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Mishra et al. (5,795,798)**.

As for **claim 10**, Jung in view of Hochman discloses everything as above (see **claim 1**). However, they are silent concerning several light sources having differing spectral characteristics. Jung in view of Hochman discloses the claimed invention except that a white diode instead of several light sources having differing characteristics, Mishra shows that three diodes, a red, a green, and a blue diode is an equivalent structure known in the art (col. 1, lines 45-64). Therefore, because these two were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a white diode for a red, green, and blue diode.

23. **Claims 18 and 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Reisser (5,392,125)**.

As to **claim 18**, Jung in view of Hochman disclose everything as above (see **claim 17**). They also disclose that angles may differ between the different optical means (col. 34, lines 25-

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45). They are silent concerning the particular group of angles other than ninety, perpendicular, but disclose that nonperpendicular arrangements may be utilized (col. 19, lines 10-25).

However, Reisser in a system for determining visual surface properties teaches using twenty and eighty five degrees for high gloss and mattgloss measurements and a forty five and zero degree arrangement for measuring color (col. 4, lines 15-25; col. 4, lines 45-55). It would be obvious to one skilled in the art at the time the invention was made use a twenty and eighty five degree arrangement for gloss measurements and a forty five and zero degree arrangement for measuring color.

As to **claim 19**, Jung in view of Hochman and further in view of Reisser disclose everything as above (see **claim 18**). However, Jung is silent concerning a secondary optical system for the Fig. 1 embodiment, but Jung discloses a second optical system, secondary triad sensors in order to keep the probe stationary in respect to the measured surface (Fig. 20). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a secondary optical system in order to have the probe stationary to the measurement surface.

24. **Claims 20, 21, 23, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Reisser (5,392,125)** and further in view of **Lex (5,923,434)**.

As for **claim 20**, Jung in view of Hochman and further in view of Reisser discloses everything as above (see **claim 19**). As for a third optical system, Jung discloses a third optical system, an intra-oral camera system for imaging (Fig. 24). It would be obvious to one skilled in the art at the time the invention was made to have a third optical system, an intra-oral camera, in

order to make a complete profile of the measurement surface. However, they are silent concerning the emission versus reflection angles of the particular optical means. Lex in a surface quality measuring device teaches that the Fresnel reflection law is valid for gloss behavior (col. 1, lines 25-35). Therefore, it would be obvious to one skilled in the art at the time the invention was made that the angles for gloss measurements will be different than the angles for imaging measurements by the intra-oral camera system, for gloss measurements follow a valid Fresnel reflection law.

As for **claim 21**, Jung in view of Hochman, Reisser, and Lex discloses everything as above (see **claim 20**). Jung discloses the light source, third optical means, of the intra-oral camera may be the same as of the reflectometer (Fig. 34). Therefore, the light sources for both systems are functionally equivalent. Because the light source of the reflectometer system and the intra-oral camera system were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a white diode of the reflectometer system for the light source of the intra-oral camera.

As to **claims 23 and 24**, Jung in view of Hochman, Reisser, and Lex disclose everything as above (see **claim 20**). In addition, Jung discloses the fiber optic source may emit light that is of differing vergences depending on choice of numerical aperture of fiber optic (col. 40, lines 20-40).

25. **Claims 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Reisser (5,392,125)** and further in view of **Lex (5,923,434)** further in view of **Klenk et al. (4,918,321)**.

As to **claim 25**, Jung in view of Hochman, Reisser, and Lex disclose everything as above (see **claim 23**). However, they are silent concerning emitting a strip of light perpendicular to the direction of propagation. Klenk in a reflected light scanning method teaches using strips of light to illuminate surface in order to better profile matt surfaces (col. 1, lines 1-15 and lines 53-68). Therefore, it would be obvious to one skilled in the art at the time the invention was made to emit strips of light in order to better profile matt surfaces.

As to **claim 26**, Jung in view of Hochman, Reisser, Lex, and Klenk discloses everything as above (see **claim 25**). In addition, temperature measuring means for determining characteristic temperature of sensor for temperature compensation of measurements (col. 9, lines 23-40). As for the sensor's placement, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the temperature measuring means arranged near the sensor since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70

As to **claim 27**, Jung in view of Hochman, Reisser, Lex, and Klenk discloses everything as above (see **claim 26**). In addition, a portion of the progression of the image of at least one light/dark edge is defined on photosensors and a characteristic surface parameter is determined from deviation of the measured path from the ideal path (col. 35, lines 40-67; col. 19, lines 1-25).

26. **Claims 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **Hochman et al. (6,241,672)** and further in view of **Lex (5,596,412)**.

As to **claims 29 and 30**, Jung in view of Hochman disclose everything as above (see **claim 28**). However, they do not teach a measurement wheel positioned on surface and rotates relative to movement of device and measurement surface and coupled to a rotating angle output

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device. Lex in a device for physiological assessment of reflective surfaces teaches using a measurement wheel coupled to a rotating angle output device in order to determine the exact geometric relationship of the measuring points on the surface (col. 2, lines 55-64; col. 6, lines 55-67; col. 7, lines 1-30). Therefore, it would be obvious to one skilled in the art to have the invention include a measurement wheel coupled to a rotating angle output device in order to determine the exact geometric relationship of the measuring points and to determine directly the relative movement between the measuring device and the measurement surface.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 3,971,956 to Jakeman et al.

U.S. Patent 3,999,864 to Mutter

U.S. Patent 4,750,140 to Asano et al.

U.S. Patent 4,989,984 to Salinger

U.S. Patent 5,592,294 to Ota et al.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

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This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is:

(703) 308-7722

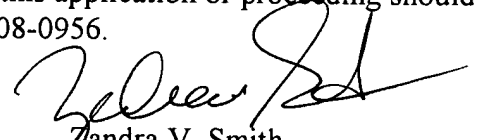
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. – 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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January 7, 2003


Zandra V. Smith
Primary Examiner
Art Unit 2877